NON-PUBLIC?: N
ACCESSION #: 9106190426
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Arkansas Nuclear One, Unit One PAGE: 1 OF 3

DOCKET NUMBER: 05000313

TITLE: Automatic Reactor Trip On Loss of Main Feedwater Caused By Inadequate Procedural Guidance Regarding Cross-Tie of Electrical Load Centers
EVENT DATE: 05/21/91 LER #: 91-005-00 REPORT DATE: 06/14/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Thomas F. Scott, Nuclear Safety and Licensing Specialist TELEPHONE: (501) 964-5000

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On May 21, 1991, at approximately 0951, with the plant at 100 percent of rated power, an automatic anticipatory reactor trip on loss of main feedwater occurred when the circuit breaker supplying two cross-tied non-vital 480 volt load centers tripped on overload and de-energized the control oil pumps for both main feedwater pumps. Plant response to the trip was as expected. Water level was maintained in both steam generators by the emergency feedwater system. The load centers had been cross-tied to perform maintenance on one of the load center feeder breakers. The loading from both load centers exceeded the trip rating of one feeder breaker because the evolution was performed at power without first having shed the excess loads. The root cause of the event was inadequate procedural guidance contained in the electrical system normal operating procedure being used for the cross-tie evolution. The

procedure has been revised to prevent recurrence. A contributing cause was insufficient review associated with the planning, scheduling, authorizing and performing of an infrequent and unusual evolution. Those personnel involved with this event have been counseled concerning their responsibilities.

END OF ABSTRACT

A. Plant Status

At the time of this event, Arkansas Nuclear One, Unit One (ANO-1) was operating a
100 percent power with Reactor Coolant System (RCS)
AB! temperature at 579 degrees and pressure 2155 psig. No equipment affecting the event was out of service.

B. Event Description

On May 21, 1991, at approximately 0951, an automatic anticipatory reactor trip on loss of main feedwater SJ! occurred when the circuit breaker supplying two cross-tied non-vital 480 volt load centers EC! tripped on overload and de-energized the control oil pumps for both main feedwater pumps.

Circuit breaker B-112, the normal supply breaker for non-vital 480 volt load center B-1, was found to have mechanical binding problems that caused excessive force to be required for insertion of the breaker assembly into its cubicle. The breaker was determined to be electrically operable. This condition was discovered on December 10, 1990, and a job request was initiated to repair the breaker. Repairs were planned for a scheduled outage in April 1991, but the work was deferred. After the plant had returned to power, the repair work was evaluated as part of the normal work control process and scheduled to be performed during power operation.

At approximately 0946 on May 21, 1991, 480 volt load centers B-1 and B-2 were cross-tied in accordance with an approved normal electrical operating procedure ("Electrical System Operations", OP 1107.001) in order to establish the conditions necessary for the removal and repair of breaker B-112. At approximately 0951, the supply breaker for load center B-2 (B-212) tripped on overcurrent, as designed for a loading of approximately 1733 amperes. De-energizing both B-1 and B-2 resulted in loss of power to the control oil pumps for both main feedwater pumps. This caused an anticipatory Reactor Protection

System JC! reactor trip on loss of main feedwater, as designed. Plant response to the reactor trip was normal. Feedwater was supplied by the Emergency Feedwater System BA! to maintain steam generator level greater than 30 inches in each generator. Minimum post-trip RCS average temperature was approximately 553 degrees. The reactor was returned to criticality at 2115 on May 21, 1991, and the turbine generator placed on-line at 0340 on May 22, 1991.

C. Root Cause

The root cause of this event was inadequate procedural guidance regarding the cross-tie of electrical load centers. OP 1107.001, "Electrical System Operations", failed to supply either limiting current values for the circuit breakers or precautions regarding load restrictions during cross-tie operations. The decision to perform the evolution at power was based in part on successful past experience with cross-tieing the load centers during outage conditions when there was less load on the buses. The cross-tie operation had not normally been performed in the past with the reactor at power.

A contributing cause was that personnel involved with planning, scheduling, authorizing and performing the load center cross-tie conducted an insufficient review of an infrequent and unusual evolution. This led to the failure to identify and address the potential problems that resulted in the overload condition.

D. Corrective Action

Procedure 1107.001 has been revised to add a caution statement concerning potential overload conditions and to prevent cross-tie of the 480 volt load centers above cold shutdowns conditions without the approval of the Operations Manager or except as required in an emergency. The corrective action is not applicable to Unit 2 because the normal electrical system operating procedure does not contain instructions for cross-tieing 480 volt load centers.

Personnel involved with planning, scheduling, authorizing and performing the load center cross-tie were counseled concerning their responsibilities for the in-depth review of planned work or evolutions, especially those involving unusual or abnormal plant conditions, to ensure that potential impact has been properly identified.

E. Safety Significance

Since all equipment operated as designed and the plant response to the anticipated transient and resulting reactor trip was as expected, there was minimal safety significance associated with this event.

F. Basis for Reportability

This event is reportable pursuant to 10CFR50.73(a)(2)(iv) as an event that resulted in an automatic actuation of the Reactor Protection System.

This event was reported pursuant to 10CFR50.72(b)(2)(ii) at 1043 on May 21, 1991.

G. Additional Information

There have been no previous similar events reported as Licensee Event Reports at ANO in which problems with cross-tie of electrical buses resulted in a reactor trip,

Energy Industry Identification System (EIIS) codes are identified in the text as XX!.

ATTACHMENT 1 TO 9106190426 PAGE 1 OF 1

Entergy Entergy Operations, Inc.
Operations Route 3, Box 137G
Russellville, AR 72801
Tel 501-964-3100

June 14, 1991

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U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Licensee Event Report 50-313/91-005-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv), enclosed is the subject report concerning an automatic reactor trip.

Very truly yours,

James J. Fisicaro
Director, Licensing

JJF/TFS/mmg
Enclosure

cc: Regional Administrator
Region IV
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